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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/606,080

06/25/2003

Walid Khairy Mohamed Ahmed

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09/08/2009

ALLEN, DYER, DOPPELT, MILBRATH & GILCHRIST  
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SUITE 1401  
ORLANDO, FL 32801

EXAMINER

AHN, SAM K

ART UNIT

PAPER NUMBER

2611

NOTIFICATION DATE

DELIVERY MODE

09/08/2009

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

creganoa@addmg.com

## Office Action Summary

**Application No.**

10/606,080

**Applicant(s)**AHMED, WALID KHAIRY  
MOHAMED**Examiner**

SAM K. AHN

**Art Unit**

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 May 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-4 and 9-48 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 21-48 is/are allowed.
- 6) ☒ Claim(s) 1-4 and 9-19 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date: _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments, see p.10, filed 05/27/09, with respect to the rejection(s) of claim(s) 1-4,7,11-13 and 16-19 under 35 U.S.C. 102 have been fully considered and are persuasive. Therefore, the rejection has been withdrawn. However, upon further consideration, a new ground(s) of rejection is made in view of Bengtsson et al. US 2002/0071497 A1 (Bengtsson).

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4 and 9-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bengtsson et al. US 2002/0071497 A1 (Bengtsson) in view of Kornfeld et al. US 5,974,041.

Regarding claim 1, Bengtsson teaches a method for electromagnetic processing of an input wave comprising the steps of: receiving a modified signal derived from two or more signals that represent said input wave when combined (output of 420 in Fig.9 wherein one skilled in the art would recognize that I and Q received by 410 are in phase and quadrature signals well-known to represent an input wave modified to be a modified signal); and regulating said modified signal using a plurality of

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segments and a digital signal containing at least one characteristic of said two or more signals (regulating said output of element 420 using plurality of PA drivers 1150a and 1150b and a digital signal of output of 440" having characteristics of the I and Q); wherein one or more of said segments is independently controlled as a power amplifier (PA or power amplifier 1150a and 1150b) by a portion of said two or more signals that represent said input wave to contribute power to an output signal (portion of output of 420 provided to 1150a and 1150b). Bengtsson further teaches a step of generating the output signal by combining power outputted from one or more of said segments (980 in Fig.12, generating output of 950a and 950b by combined power control outputted from one of said segment 950a). However, Bengtsson does not explicitly teach generating the output signal by combining power outputted from one or more of said segments using one or more selected from the group consisting of power transformers, quarter-wave transmission lines, discrete LC components, and a Pi-networks. Kornfeld teach generating the output signal by combining power outputted from one or more of said segments using one or more selected from the group consisting of power transformers, quarter-wave transmission lines, discrete LC components, and a Pi-networks (see 106, 110 in Fig.4 and wherein quadrature phase combiners are interpreted herein as quarter-wave transmission lines, note c.6, I.39-47). Kornfeld further suggests that the system of the amplifier circuit improves efficiency while maintaining efficiency (note c.2, I.29-32). Therefore, it would have been obvious to one skilled in the art at the time the invention was made

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to incorporate the amplifier circuit of Kornfeld in the system of Bengtsson for the purpose of improving efficiency while maintaining efficiency (note c.2, l.29-32).

Regarding claim 2, Bengtsson further teaches wherein said two or more signals are in quadrature with each other (I and Q inputted to 420 are in phase and quadrature that are well-known to be in quadrature with each other).

Regarding claim 3, Bengtsson further teaches wherein said characteristic used to regulate said modified signal is magnitude (440''' in Fig.9 regulate said modified is magnitude or amplitude by the amplitude tracking).

Regarding claim 4, Bengtsson further teaches a step of generating the output signal from said regulating of said modified signal (generating output signal, output of 1150a in Fig.9).

Regarding claim 9, Bengtsson in view of Kornfeld teaches all subject matter claimed, as applied to claim 1. And although Bengtsson does not explicitly teach wherein one or more of said segments is independently controlled as a current source by said portion of said two or more signals that represent said input wave to contribute current to an the output signal, at the time of the invention, it would have been obvious to a person of ordinary skill in the art to implement as such. Applicant has not disclosed that such implementation provides an advantage, is used for a

particular purpose or solves a stated problem. One of ordinary skill in the art, furthermore, would have expected Applicant's invention to perform equally well with the disclosure of Bengtsson of providing output signal because the power amplifier of Bengtsson properly generates output signal for wireless communication (note paragraph 0005). It is well-known that voltage source or current source can be implemented in generation of output signal. Therefore, it would have been obvious to one of ordinary skill in this art to modify the teaching of Bengtsson to obtain the invention as specified in the claim.

Regarding claim 10, Bengtsson teaches all subject matter claimed, as applied to claim 1. However, Bengtsson does not teach wherein said received modified signal contains only one of said two or more signals used to derive said modified signal.

Kornfeld teaches said received modified signal (input signal in Fig.4 modified into modified signal provided to gain or power amplifiers F1 – F4) contains only one of said two or more signals used to derive said modified signal (each of the F1 – F4 receiving signal which contains only one of the four modified signals input to F1 – F4). Kornfeld further teaches that this implementation improves efficiency while maintaining linearity (note c.2, l.30-32). Therefore, it would have been obvious to one skilled in the art at the time the invention was made to incorporate the teaching of Kornfeld in the system of Bengtsson for the purpose of improving efficiency while maintaining linearity (note c.2, l.30-32).

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Regarding claim 11, Bengtsson further teaches wherein said received modified signal is derived from a sign characteristic of at least one of said two or more signals that represent said input wave when combined (received modified signal output by 420 having sign of positive or negative sign).

Regarding claim 12, Bengtsson further teaches wherein said modified signal is a carrier wave modulated by a characteristic of at least one of said two or more signals that represent said input wave when combined (carrier wave signal modulated through 1142a and 1142b).

Regarding claim 13, Bengtsson further teaches generating said modified signal (output of 420 in Fig.9).

Regarding claim 14, Kornfeld further teaches wherein said step of generating said modified signal comprises phase shifting a carrier wave to generate a phase shifted carrier wave (phase shifting input signal to provide 0 and 90), mixing a characteristic of one of said two or more signals that represent said input wave when combined with said carrier wave (mixing with a characteristic by element 98), and mixing a characteristic of another of said two or more signals that represent said input wave when combined with said phase shifted carrier wave (mixing with another characteristic by element 102).

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Regarding claim 15, Kornfeld further teaches wherein said carrier wave and said phase shifted carrier wave have a relative phase difference of  $90^\circ$  (see 94 in Fig.4 providing signals with 90 degrees difference).

Regarding claim 16, Bengtsson further teaches generating said two or more signals that represent said input wave when combined (output of 420 in Fig.9).

Regarding claim 17, Bengtsson further teaches processing one or more of said two or more signals that represent said input wave when combined (output of 420 processed in Fig.9).

Regarding claim 18, Bengtsson further teaches performing correction of an amplitude characteristic of a carrier wave used in said derivation of said modified signal (amplitude correction through 440’’).

Regarding claim 19, Bengtsson further teaches wherein said electromagnetic processing of said input wave comprises radio frequency modulation (note RF in paragraph 0003 modulated, note paragraph 0006).

***Allowable Subject Matter***

3. Claims 21-48 are allowed.



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4. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sam Ahn whose telephone number is (571) 272-3044. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mohammad Ghayour can be reached on (571) 272-3021. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Sam K. Ahn/  
Primary Examiner, Art Unit 2611

9/3/2009